L7617

June 8, 2000

Dear Friends:

Enclosed is the *Environmental Assessment to Construct a Barn, Corral, and Radio Equipment Building at Goat Haunt* for your review and comment. If you wish to comment on the environmental assessment, you may send your comments to the Goat Haunt Project, Superintendent, Glacier National Park, West Glacier, Montana 59936. The comment period ends July 10, 2000.

Our practice is to make comments, including names and home addresses of respondents, available for public review during regular business hours. Individual respondents may request that we withhold their home address from the record, which we will honor to the extent allowable by law. There also may be circumstances in which we would withhold from the record a respondent's identity, as allowable by law. **If you wish us to withhold your name and/or address, you must state this prominently at the beginning of your comment.** However, we will not consider anonymous comments. We will make all submissions from organizations or businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses, available for public inspection in their entirety.

Thank you very much for your continued support and interest in Glacier National Park.

Sincerely,

Suzanne Lewis
Superintendent

Enclosure

ENVIRONMENTAL ASSESSMENT
TO
CONSTRUCT A BARN, CORRAL, AND RADIO EQUIPMENT BUILDING AT GOAT HAUNT

Glacier National Park
Montana

U.S. Department of the Interior
National Park Service

June 8, 2000

Summary: Glacier National Park seeks to relocate the stock operation at the Goat Haunt Ranger Station, and to formally delineate the visitor service zone based on the conceptual representation formulated in the General Management Plan (NPS, 1999). The current barn and corral facilities are located in a low-lying, wet area relatively close to Cleveland Creek. Natural flow of spring runoff and water flow during hard rainfalls course through, and around, the existing corral and barn facility. Due to the current corral location, waste from the stock animals may be washed into the adjacent watercourses and ultimately into Waterton Lake. Associated with the proposed relocation of the stock operation, a radio equipment building would also be built adjacent to the new corral, in order to upgrade the communication system. The Waterton Valley Trail that provides access to the backcountry would be rerouted around the proposed improvements.

To fully consider the issues of these proposed actions at Goat Haunt, a project team formulated two alternatives to be considered. These include*:*

Alternative 1:Continue to use the current facilities for stock operations, and do not delineate the visitor service zone, construct a radio equipment building, or reroute the trail (No Action).
Alternative 2: Construct a new barn and corral, delineate the visitor service zone, construct a radio equipment building, and reroute the hiking trail (Proposed Action).

The consequences of these actions on natural, cultural, and socioeconomic resources, including visitor use, are discussed.

TABLE OF CONTENTS

PURPOSE OF AND NEED FOR ACTION

Background

Glacier National Park is at the apex of three oceans (a triple divide) in northwestern Montana, and encompasses 1,013,5721.42 acres of breathtaking mountain scenery (Figure 1). The Goat Haunt Ranger Station is the only entry point to Glacier National Park that is not accessible by car. The easiest way to get there is by boat from the Waterton townsite in Canada. People can also hike to Goat Haunt from several points in Glacier or Waterton Lakes and catch the boat out, or hike out to Waterton. Goat Haunt is basically a backcountry ranger station with other facilities, including the International Peace Pavilion, where naturalists give talks and visitors can learn to identify wildflowers and animal tracks. A second shelter provides historical insights into the area. Neither food, nor lodging, is available to the visitor at Goat Haunt. Despite the endless stream of visitors down through the centuries, the back door of the Goat Haunt Ranger Station still opens to some of the most isolated wilderness in Glacier National Park.

In 1932, Waterton Lakes National Park in Alberta and Glacier National Park in Montana were joined together in the world's first International Peace Park. The park was formed in honor of the cooperation and friendship between Canada and the United States, and in recognition that the rare and delicate ecosystem of the Northern Rockies should not be bound by arbitrary political boundaries. Waterton-Glacier International Peace Park has set a standard for the rest of the world. The International Peace Park is in reality two independent parks that share a common goal of preserving a single ecosystem.

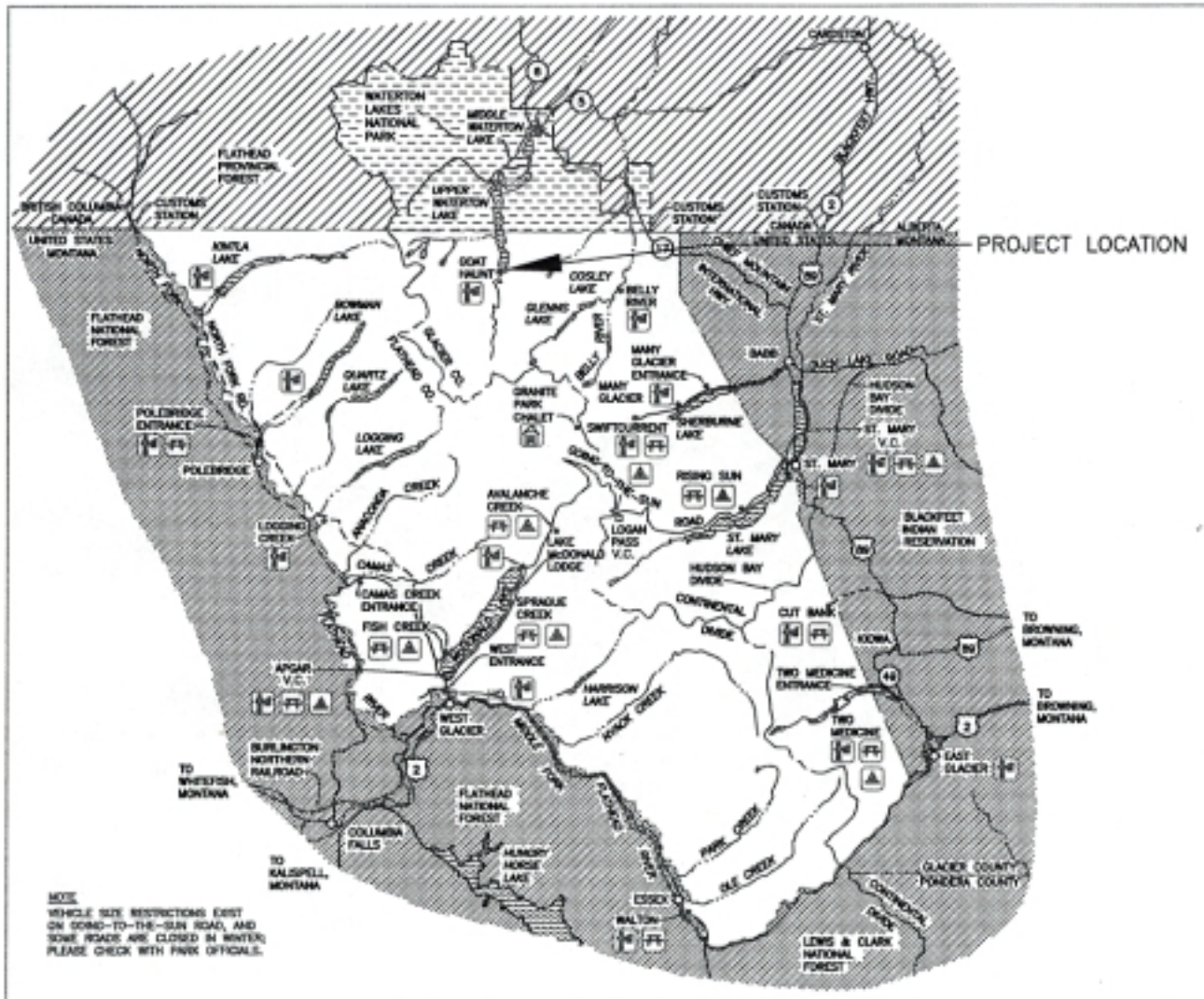
Proposed Action

The purpose of this project is to address water resource concerns surrounding the current location of a barn and corral at Goat Haunt. Animal waste from the stock operation (four horses and mules) may threaten aquatic resources of Cleveland Creek and Waterton Lake. The National Park Service proposes to build a new barn and corral in a disturbed site of .54 acres, approximately 492 feet south of the present location, and reroute the trail 426 feet around the facility to the east. Water and power to the site would be provided within the existing right of way. The current barn facility would be retained, and continued to be utilized for maintenance, fire protection and other operational functions. The corral would be removed, and the site rehabilitated. The National Park Service would also be constructing a small building to house photovoltaics and equipment for the radio communication system. The visitor service zone at Goat Haunt was identified conceptually, and described in the General Management Plan. We are proposing to formally designate the boundary of this zone (Figure 2).

Objectives of the Project

- Reduce risk of surface water contamination from stock operations.
- Ensure that the design of the new barn, corral, and radio equipment building are sustainable, and architecturally compatible with the current buildings and landscape of the Goat Haunt area.
- Relocate the trail to minimize visitor use conflict with the new barn and corral location.
- Ensure preservation of natural and cultural resource values.
- Identify the visitor service zone on the ground, based on the conceptual description in the General Management Plan.

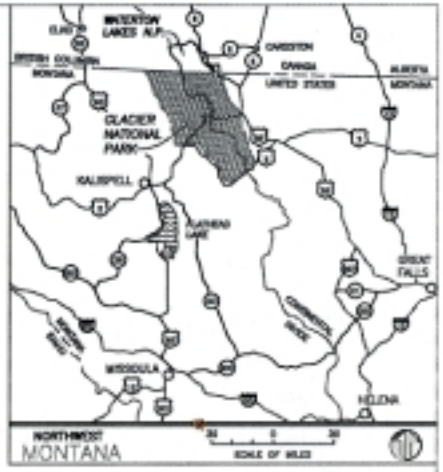
Figure 1
Project Location



NOTE
VEHICLE SIZE RESTRICTIONS EXIST ON GOING-TO-THE-SUN ROAD, AND SOME ROADS ARE CLOSED IN WINTER; PLEASE CHECK WITH PARK OFFICIALS.

LEGEND

- PARK BOUNDARY
- STATE LINE
- COUNTY LINE
- PAVED ROAD
- UNPAVED ROAD
- CREEK
- V.C. VISITOR CENTER
- HQ. PARK HEADQUARTERS
- RANGER STATION
- PICNIC AREA
- CAMPGROUND



GLACIER NATIONAL PARK
WORLD HERITAGE SITE

FIGURE 1

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
GLACIER NATIONAL PARK

TITLE OF DRAWING
CONSTRUCT BARN and CORRAL
LOCATION WITHIN PARK
GOAT HAUNT
NAME OF PARK
GLACIER NATIONAL PARK
REGION: INTERMOUNTAIN
COUNTY: FLATHEAD
STATE: MONTANA

DRAWING NO. 117 80,353
PKG NO. 1

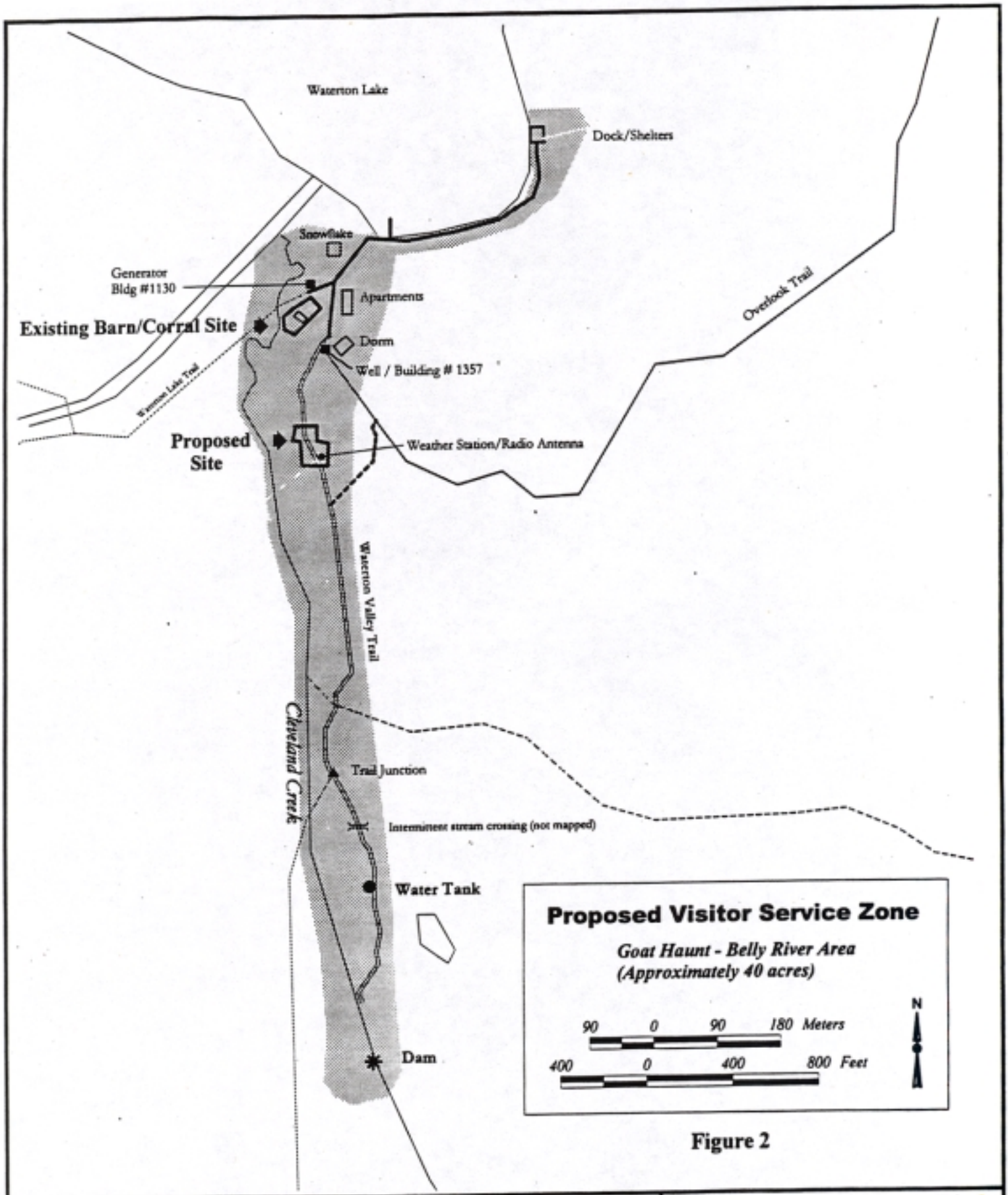

Waterton Lake
Dock/Shelters
Snowflake
Generator
Bldg #1130
Apartments
Existing Barn/Corral Site
Dorm
Well / Building # 1357
Overlook Trail
Waterton Lake Trail
Proposed
Site
Weather Station/Radio Antenna
Waterton Valley Trail
Cleveland Creek
Trail Junction
Intermittent stream crossing (not mapped)
Water Tank
Dam
Proposed Visitor Service Zone
Goat Haunt - Belly River Area
(Approximately 40 acres)
90 0 90 180 Meters
400 0 400 800 Feet
N
Proposed Visitor Service Zone
Lakes
Perennial Stream
Intermittent Stream
Old Roadbed/Trail
Hardened Path
Proposed Trail Reroute
Existing Trail
WATERTON-GLACIER
Drawn by: rlm 06.08.00
Data Sources: USGS DOQQ, Trimble GeoExplorer II GPS (5/9/00)

Figure 2

Need for the Project

The barn and corral at Goat Haunt were constructed in their present location in about 1965. The barn (building #1128) and stock corral are located in a low-lying, wet area relatively close to Cleveland Creek. Natural flow of spring runoff and water flow during hard rainfalls courses itself through, and around, the existing corral and barn facility. Due to its proximity to the lake, waste from the stock animals may be washed into the adjacent watercourses and ultimately into Waterton Lake.

The corral and barn facility is essential for keeping the stock animals used for backcountry patrols, search and rescue operations, and providing supplies for trail work and maintenance operations. These needs are critical because this remote Ranger Station is accessible only by boat, hiking or horseback.

The visitor service zone was conceptually described in the General Management Plan. This project would more specifically define the visitor service zone for the Goat Haunt-Belly River Area. No formal delineation of the visitor service zone exists for the Goat Haunt Area. As part of Glacier's current wilderness proposal (NPS, 1999, 1974) a forty- (40) acre enclave was established at the foot of the Lake. This zoning would include the enclave, and show the external limits for the utilities, buildings, administrative facilities, employee housing, and other facilities used to support visitor services.

The radio communication system for Glacier National Park is being upgraded with digital equipment because of new standards implemented for all federal agencies. The radio tower and photo-voltaic cells at Goat Haunt provide communication throughout the north part of the park. The upgrade would require new equipment to be located on the site, in a shelter adjacent to the radio tower.

Issues

The park staff has identified a number of relevant issues, concerns, and opportunities.

Topography, Soils, Geology:
The topsoil is limited and shallow, with gravelly and sandy subsoil. This is a concern regarding percolation rates of water through the soil to ground water, and revegetation potential.

Vegetation:
A new disturbance can result in an increase in exotic plants that can crowd out native species. Shallow soil presents challenges for revegetation of native plants.

Wildlife:
There are a number of species of wildlife that utilize habitats in or near the project area, including at least one federally listed threatened species, the grizzly bear. There is concern that the project not attract grizzly bears, or encourage their presence within the visitor service zone, and possible access to artificial food or visitor injury.

Water Resources, Wetlands, and Floodplains:
The project area is bordered by surface water, wetland, and a creek that eventually flows into Waterton Lake. There are surface watercourses that can flow through the current corral, and potentially transport animal waste to adjacent watercourses or potentially to ground water. The static water level of the domestic well is at 19 feet, and the well is located 300 feet downgrade from the proposed relocation site for the corral and barn.

Visual Resources:
Development at Goat haunt is characterized as rustic with simple lines and no ornate architectural style. New construction must be compatible to maintain the visual quality and consistency in the developed area. Any structures to be constructed should be compatible with the visual character of the Goat Haunt Area, and appropriate for the natural and structural setting. Construction materials should match existing wood and log materials. Design and

materials need to respond to maintenance and sustainability requirements including durability to withstand weather conditions.

Cultural Resources:
There is documented evidence in the use of Goat Haunt by early American Indians, fur traders, and explorers. Initial investigations have not indicated presence of any known historic structures, archeological or ethnographical resources within the project area.

Park Visitation and Use:
The current stock operation would need to remain in use while the new barn and corral are being constructed in order to prevent disruption to stock operations and backcountry hiking on the trails of the area.

Issues Eliminated from Detailed Study:

Air quality/Odor/Natural Soundscapes:
Air quality, sound and odor are not discussed in detail in this document because potential effects are expected to be negligible. Particulate from dust would be minimal, and temporary, because the ground disturbance is small. There is no evidence that odor from stock operations at Goat Haunt was an issue that was identified by visitors or employees. Construction activities would occur away from the primary use area, and noise from carpentry is not expected to be an annoyance for visitors. There would be no cumulative impacts due to negligible affects from this action.

Environmental Justice
The proposed action would not have health or environmental effects on minorities, low-income populations, or communities.

Energy Consumption
Construction equipment use would result in minor energy consumption during construction. There are no known cumulative impacts on energy consumption from alternative actions.

Concession Operation:
Concession services would not be affected by this project. The Goat Haunt area would remain open to all visitor use activities, including use of the boat service from Waterton Townsite to Goat Haunt.

ALTERNATIVES INCLUDING THE PROPOSED ACTION

Description of the Alternatives

This section describes the alternative actions, and summarizes the environmental consequences of the alternatives. Development of alternatives involved the suggestions from the Project Team and park staff, and Department of Interior staff. Two alternatives were identified for further evaluation as part of the Environmental Assessment, and are discussed below. The alternatives that were considered, but eliminated from detailed study, are also briefly discussed.

Alternative 1: Continue to use the current facilities for stock operations, and do not delineate the visitor service zone, construct a radio equipment building, or reroute the trail (No Action).

Under No Action, the visitor service zone would remain only as an indistinct conceptual representation. The National Park Service would neither improve nor discontinue stock operations at the current barn and corral facility at Goat Haunt. The current Waterton Valley trail route through the development would be retained, and the radio equipment building would not be constructed (Figure 2 & 3).

The road would continue to be used as a utility right of way, and provide access to the water tank and former water system reservoir, located south of the site. The backcountry access trail south of the Ranger Station Complex was relocated to the old roadbed from the west in 1995, after flooding of Cleveland Creek. The Waterton Valley hiking trail, used for access into the day use and backcountry zones to the south, would continue to travel along this roadway until it branches off to the southwest.

The existing barn and corral would continue to be used for stock operations, tool storage, and as a fire cache in the current location. The barn and corral measure approximately 75 feet by 180 feet, which is about .31 acre. The amount of stock use would continue to be 4 mules for 70 days, as a base for packing into the backcountry from May to September. Resource management operation would continue to include removal of solid waste from the barn and corral on a weekly basis, and depositing at a compost site 492 feet to the south. Minor grading within the corral would continue to be done as needed to reduce standing water or surface flow through the corral.

Mr. Gene Serber, an extension natural resource specialist at Montana State University, provides information on potential nutrient loading at the Goat Haunt Corral stock operation. Mr. Serber suggests that if the corral usage is approximately 4 horses/mules for 70 days = 280 animal unit days, then each animal contributes 51 pounds of manure a day of which 75% is water. The animals use the corral during the visitor use season from June 1 – September 30, for approximately 14,280 pounds of manure a season, which contributes Nitrate 0.30 microns per cubic liter; Phosphorous 0.161microns per cubic liter; Potassium 0.301microns per cubic liter (Serber, 2000).

The maintenance area, site of the proposed barn/corral relocation described in Alternative 2, would continue as a storage area for the portable propane tank and trailer, site for disposal and burning of combustible materials, compost pile for stock waste from the current corral, and a storage area. A radio communications tower, along with photo-voltaic panels and a Canadian weather station, would continue to be used in the maintenance area. The area was previously used as an incinerator site and was cleared of trees to create an opening in the forest.

See Chapter III (Affected Environment) for a more detailed profile of the current environmental situation in the project area.

GLACIER NATIONAL PARK
GOATHAUNT AREA
SITE OVERVIEW
AS-BUILT TRAIL AND UTILITY VIEW

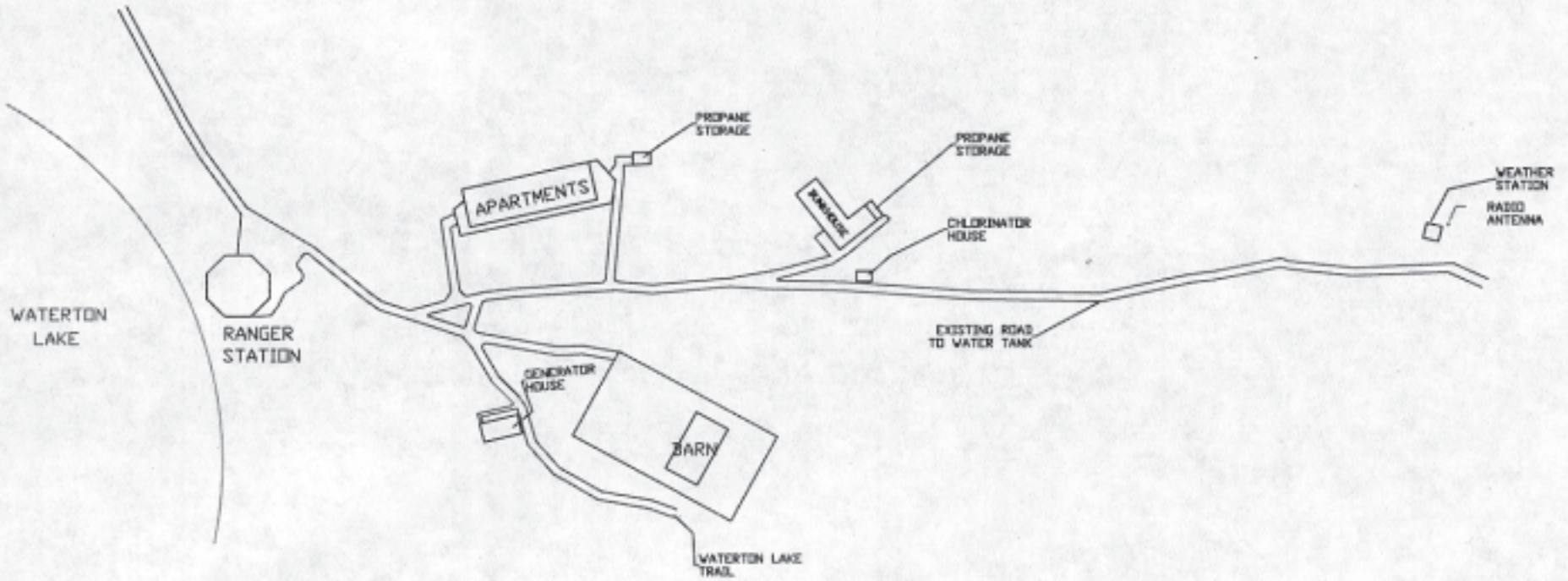


FIGURE 3
NO ACTION ALTERNATIVE 1

N

DESIGNED POLZIN CADD MARTIGNETTI TECH REVIEW POLZIN DATE 5-22-00	SHEET NO. 3	TITLE OF SHEET GOAT HAUNT SITE PLAN EXISTING	DRAWING NO PKG. NO. SHEET OF

Alternative 2: Construct a new barn and corral, delineate the visitor service zone, construct a radio equipment building, and reroute the hiking trail (Proposed Action).

Under the proposed action the visitor service zone would be defined on the ground using the global position system, and entered into the Park Geographic System. A new barn and corral would be constructed for stock operations, the Waterton Valley backcountry trail would be rerouted around the new facility, and a small building would be provided to house new radio equipment. This action would continue to provide needed stock operations, and protect, preserve, and enhance historic, cultural and natural resources. The new facilities would enable the Park Service to relocate stock operation out of the low-lying, wet site (Figures 2, 4 and 5).

The proposed location for the new barn and corral would occupy a previously disturbed site of .54 acres that is drier, at a higher elevation, and approximately 492 feet south of the present location. This site is an "L shaped" clearing measuring approximately 108 feet by 180 feet. The site is located within the visitor service zone and is accessible from the existing roadway and utilities right of way for electricity and water. Power would be supplied with a buried service line originating at the generator house within the Goat Haunt complex. Water would be supplied from the gravity water supply line that traverses the proposed site location.

The barn building would be smaller than the current structure; however, the corral would require the same amount of area as the existing corral. The proposed design for the barn would include a facility that would measure 34 feet by 24 feet with a covered 10 feet feeding area on the east gable end. The barn would consist of a tack room, grain storage room, and a hay storage area. It would be open to hay feeders on the east covered end, and would be shuttered for the winter. The structure would rest on a concrete footing, with pressure treated foundation walls. The exterior finish would be board and batten, and it would have a metal roof. The corral would encompass the barn, and be installed around the structure to the east and south. Since the roadway passes through the middle of the corral and would continue to be used as an access road to the water tank and a utility right of way, two access gates would be constructed in the fence.

The Canadian weather station, and a parkwide radio communications tower with photovoltaic panels would continue to be used in their current location on the south side of the site. A new radio antenna cable supply would also be run with power supply from the Ranger Station Complex. In order to provide upgrades to the radio system, a small 10'x10' building would be constructed adjacent to the radio antenna to house batteries and radio equipment needed for the new digital radio communication system**.** The photovoltaic panels would be mounted on the roof. This structure would be made of board and batten siding and a metal roof to blend in with existing structures. A new radio antenna cable would be installed with the power supply from the ranger station complex.

The Waterton Valley hiking trail for access to backcountry destinations to the south would be rerouted 426 feet from a point near the dormitory, around the new barn and corral facilities, and rejoin the road south of the new site. A para-archeologist would be present during actual trail construction to closely monitor new ground disturbance in case subsurface archeological resources are found.

Construction of the new barn, corral, and trail would require excavation and salvage of about 1000 square feet of soil and vegetation. The Restoration Biologist would lead revegetation efforts. The soil would be salvaged, stored and replaced after construction. Restoration of native plants would require salvage of sod, seed collection, propagation of containerized and bare root plants, seeding, mulching, and planting, irrigation and maintenance. Seeds would be collected for propagation and direct seeding from the Goat Haunt area. Restoration work would be implemented by Park revegetation and nursery crews, and utilize facilities at the Glacier National Park Native Plant Nursery and the Bridge Plant Materials Center. The IPM Biologist and her staff would implement exotic plant control work.

The Park Service, pending available funding would remove the existing corral and fence, and revegetate the site with native plants. The penta posts would be disposed of according to state and federal regulations. The structure, which was used partially as a barn, would remain, with use of the existing fire cache and tool room/workshop continuing. The space used to store hay, feed and tack would be used to store materials, some of which were formerly stored at the new barn location.

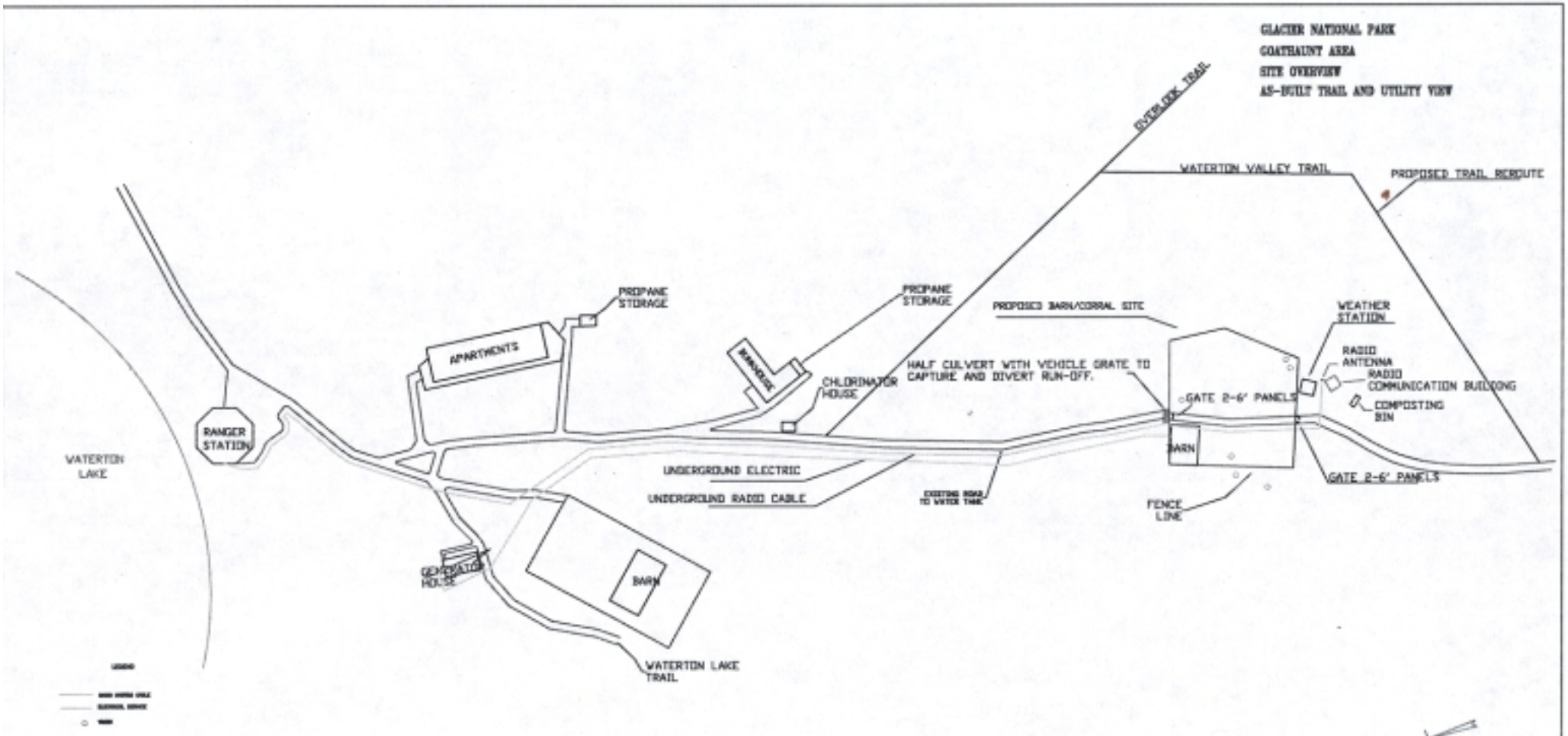


FIGURE 4
PROPOSED ACTION ALTERNATIVE 2

DESIGNED POLZIN DRAWN MARTINETTI TECH REVIEW POLZIN DATE 5-22-00	SHEET NO. 4	TITLE OF SHEET GOAT HAUNT SITE PLAN PROPOSED	DRAWING NO PKG. NO. SHEET 1 OF 1

PROPOSED BARN/CORRAL SITE

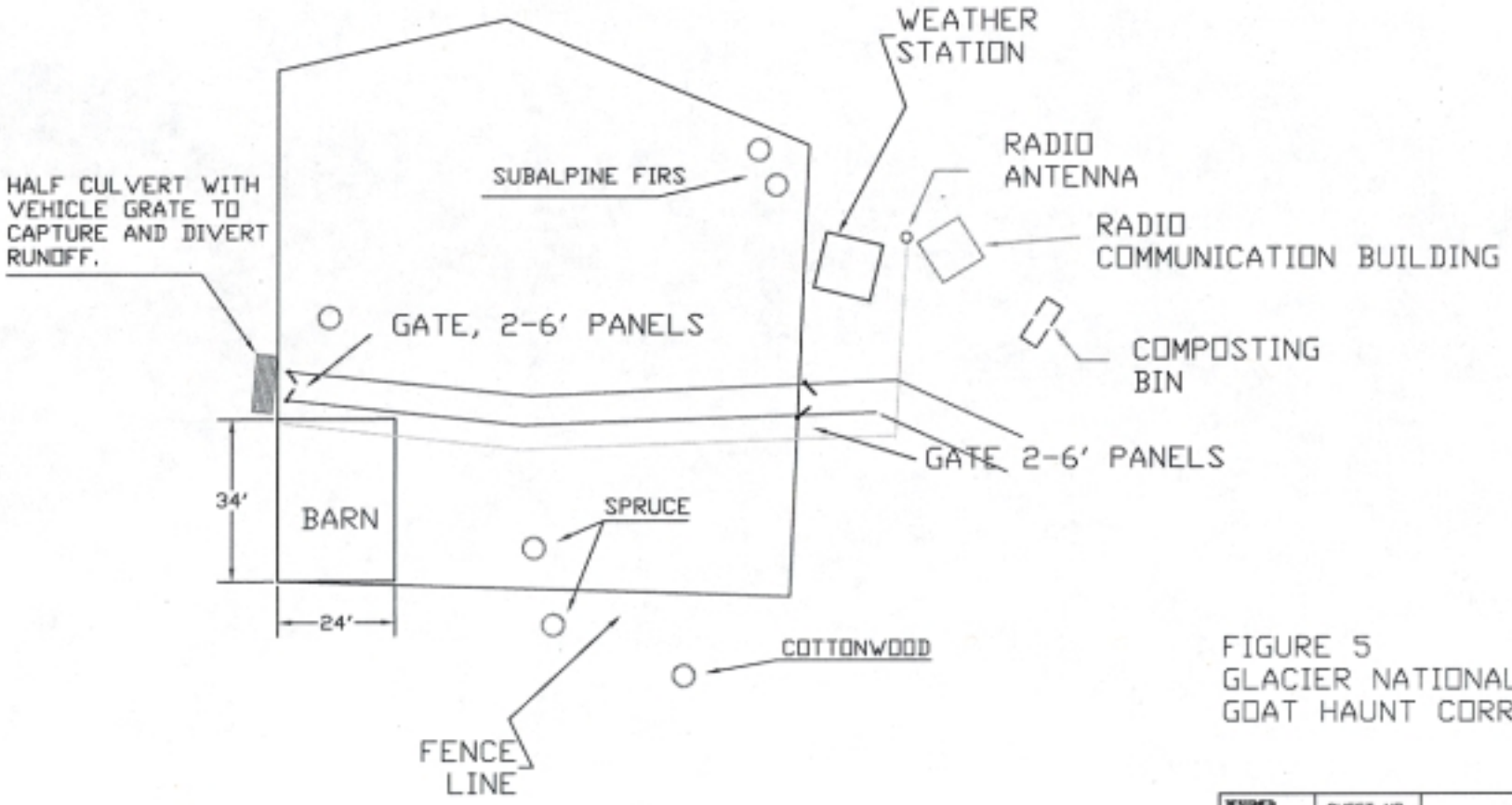


FIGURE 5
GLACIER NATIONAL PARK
GOAT HAUNT CORRAL SITE

DESIGNED POLZIN DRAWN BURGESS TECH REVIEW POLZIN DATE 6-05-00	SHEET NO. 5	TITLE OF SHEET GOAT HAUNT BARN and CORRAL SITE PLAN	DRAWING NO PKG. NO. SHEET 1 OF 1

Alternatives Considered but Eliminated

Locate Barn, Corral, and Stock Operations Elsewhere:
Consideration was given to alternative places for the barn and coral. There are no other locations within the Goat Haunt Visitor Service Zone due to proximity of surface water to the west and geographic limitations to the east. The development must be within the visitor service zone to be consistent with the General Management Plan. It is unreasonable to locate the barn and corral at the Waterton Townsite due to the trail distance from the Waterton townsite to Goat Haunt, and the separation from the area operations. This separation from the Goat Haunt District office would result in increased costs, inefficiency in supporting search and rescue operations, and make coordination with daily operations difficult.

Discontinuation of stock operations at Goat Haunt:
Stock operations serve an important function in supporting trail maintenance, search and rescue, support for backcountry and resource operations. Stock are an important means of supporting daily operations and emergency needs within this isolated area of Glacier National Park.

Drain system at current corral and barn site:
Consideration was given to a design that would install a drain system under the surface of the existing corral to collect percolated liquid from the corral, and route it to a collection pond where it could be treated. There are problems with this alternative when it comes to locating the pond, considering the likely ground water level in an area so close to the lake. This also would be a very expensive proposition, and the contents of the pond would still need to be treated and disposed of somewhere.

Environmentally Preferred Alternative

The environmentally preferred alternative is determined by applying the criteria suggested in the National Environmental Policy Act of 1969 (NEPA), which is guided by the Council on Environmental Quality (CEQ). The CEQ provides direction that "the environmentally preferable alternative is the alternative that will promote the national environmental policy as expressed in NEPA's Section 101. Generally this means the alternative that causes the least damage to the biological and physical environment. It also means the alternative that best protects, preserves, and enhances historic, cultural, and natural resources." (Council on Environmental Quality, "Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations" (40 CFR 1500-1508), Federal Register Vol. 46, No. 55, 18026-18038, March 23, 1981: Question 6a).

The Environmentally Preferred Alternative *is Alternative 2: Construct a new barn and corral, delineate the visitor service zone, construct a radio equipment building, and reroute the hiking trail.* The relocation of the barn and corral to a drier, open location that is further from Cleveland Creek addresses water resource concerns by reducing the risk of stock solid waste washing into Waterton Lake from surface water. The site of the old corral would be revegetated to provide cover and promote recovery of the compacted soil. Construction of the new barn, corral and radio equipment building would be confined to a site that has received years of prior disturbance as a maintenance storage area. The formal designation of the boundary of the visitor service zone would define limits of development. Upgrade of the radio communication system has direct effect on how park employees coordinate their efforts for visitor service and resources management. The reroute of the Waterton Valley hiking trail around the new barn and corral site utilizes terrain features that promotes durability, yet confines the trail within the visitor service zone.

AFFECTED ENVIRONMENT

This chapter presents relevant resource components of the existing environment at Goat Haunt. Natural, cultural and socioeconomic resources are described that would be affected by alternatives, and that would affect alternatives if they were implemented. The environment described is the baseline for comparisons.

Natural Resources

Topography, Soils and Geology

The elevation at the current barn and corral is about 4240 feet, and the soil within the area is argillite, sand, and gravel. The slope at the existing corral is about 0-2%, and the ground is very compacted and mostly denuded. The soils at the south end of the existing corral are moist, being immediately adjacent to the Cleveland Creek stream bank. The soil at the proposed relocation site is mapped as a complex of silty clay loam glacial forest soils of wide valley bottoms and loamy glacial forest soils in valleys. The soils on site are best described as loamy glacial till soils. These are very gravelly soils with red and green argillite gravel. The elevation is about 4320 feet with a slope from 0 to 5%. The site is conducive for support of a building and corral due to drainage and geology.

Aquatic Resources

The entire area, in and around the current barn and corral, has numerous seeps and springs that appear in the spring, and are associated with seasonal variations in the ground water. Cleveland Creek is located 20 feet to the west. In the spring, all of the water running out of Waterton Valley is captured around the mouth of the Waterton River. The ground water rises and the area around the barn, the mouth of Cleveland Creek, and the mouth of the Waterton River floods. Employees report there is standing surface water within and around the barn and corral facilities, that seems to come out of the ground. Heavy rains often result in increased amounts of surface water.

Although no floodplain mapping has been done of the project area, the 1964 flood destroyed all the park service buildings at the outlet of the Waterton River. During flood events of 1975 and 1994, water filled the channels adjacent to the barn and flowed through the corral. There may have been attempts over the years to direct water away from trails and structures by constructing small, hand made diversion trenches, possibly including one through the corral. There is no known documented evidence or verbal comments that the proposed relocation site of the barn and corral is within the area affected by the flooding events of 1964, 1975 or 1994 (Michels, 2000); (Potter. 2000).

Based on the National Wetlands Inventory, the current site of the barn and corral is not within identified wetlands. There is wetland identified on the inventory within approximately twenty feet (20 ft) of the existing corral, associated with Cleveland Creek and the stream bank (Williams, 2000).

The maintenance storage site, location for the proposed relocation of the barn and corral, is 492 feet south of the current site, at a higher elevation, drier, and 150 feet from Cleveland Creek. Based on the National Wetlands Inventory this portion of the visitor service zone does not contain any wetlands.

The water supply for the Goat Haunt area is provided by a well located within the developed area that includes a chlorinating building. The well is 40 feet deep, with a static water level of 19 feet. Water is pumped from the well along the road right of way approximately 2240 feet to the water tank, where it is stored (Figure 2). Water is provided for use by a line that travels back down the road by gravity feed to the chlorinator building, and then dispersed to the facilities.

Vegetation

The existing corral site is heavily compacted and primarily denuded of vegetation except for a few weedy species such as redtop (*Agrostis stolonifera),* field mint (*Mentha arvensis),* and common dandelion (*Taraxacum officinale).* Several Douglas fir (*Pseudotsuga menziesii)* trees are present within the corral having survived 35 years of corral use. They are, however, heavily eroded around the base and upper roots.

The proposed site for relocation of the stock operation and radio equipment building is a mix of weedy and native species including cow-parsnip (*Heracleum lanatum*), western groundsel (*Senecio integerimus*), white thistle (*Cirsium hookerianum),* glacier lily (*Erythronium grandiflorum),* blueleaved strawberry (*Fragaria virginiana),* Brewer's mitrewort (*Mitella breweri),* curly dock (*Rumex crispus),* clover (*Trifolium spp.),* elk sedge (*Carex geyeri),* mountain brome (*Bromus carinatus),* blue wildrye (*Elymus glaucus),* Oregon grape (*Berberis repens*), swamp gooseberry (*Ribes integerrimus*), common snowberry (*Symphoricarpos albus*), black hawthorn (*Crataegus douglassii),* subalpine fir (*Abies lasiocarpa),* Engelmann spruce (*Picea engelmannii),* and Douglas fir. Two large subalpine firtrees (approximately 40 feet tall) are located within the site. Several smaller trees (less than 15 feet tall) occur on site. A couple of mature, large (greater than 50 feet) spruce trees are located on the edge or just outside the site.

The proposed trail re-route is in spruce/fir forest with Oregon grape and mountain boxwood (*Pachystima myrsinites)* being the primary understory species along the route. Also present are prince's pine (*Chimaphilla umbellatum),* dwarf rattlesnake-plantain (*Goodyera oblongifolia),* Brewer's mitrewort, beargrass (*Xeraphyllum tenax),* swamp gooseberry, and common snowberry.

There are no federally listed threatened or endangered plant species or state listed species in the project area.

(Refer to Appendix A for a complete list of plant species found in the project area.)

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Wildlife, Including Threatened and Endangered Species

The Goat Haunt area is a richly productive wildlife area, from the Waterton River inlet with deciduous riparian habitat to the spruce-fir forest on the bench areas farther from the river. There are no site-specific wildlife inventories that have been conducted, and even less are known about insects and other invertebrates, than about mammals and birds. (Gniadeck, 2000).

Ungulates, including moose (*Alces alces*), elk (*Cervus elaphus),* mule deer (*Odocoileus hemionus*), and occasionally mountain goats (*Oreamnos americnus*) travel through and/or forage in the Goat Haunt area. There is a natural spring/mineral lick on the Rainbow Falls Trail. Several wildlife trails are found near the lick and crossing the valley generally on an E-W plane. The most heavily used trails were found above and south of the proposed site, though ungulates and other wildlife also use the hiking trails in the area. Ungulate use is probably greatest during spring-early summer and late summer-fall, but occurs throughout the summer.

Black bears (*Ursus americanus*) and grizzly bears (*Ursus arctos horribilis*) also move through the area, occasionally resulting in conflicts. During the recent site visit there was evidence of a bear dig behind the generator shed with grizzly tracks on the trail nearby. The bear may have been attracted to small amounts of spilled petroleum products. A black bear family that became human food-conditioned in Waterton Lakes NP was killed in a management action after they broke into an occupied building at Goat Haunt. Black bears have been reported in the corral, but the horses or mules chase them out (Gniadeck, 2000).

Mountain lions (*Felis concolor*) have been observed in the Goat Haunt area in 1989, with a pair of habituated, probably sub-adult, lions. Other carnivores, including lynx (*Lynx canadensis*), fisher (*Martes pennati*), wolverine (*Gulo gulo*), pine marten (*Martes americana*), and 2 or 3 species of weasels (Mustella sp.), probably also make periodic use of the area, and river otters (Lontra canadensis) have been observed in the river inlet. Snowshoe hares (*Lepus americanus*), a primary food source for lynx, probably occur in the area but there is no information on abundance or density. There is no evidence of gray wolf (*Canis lupus*) pack activity, though individual wolves may occasionally travel through the area. It is not considered primary wolf habitat (Gniadeck. 2000), as defined by the US Fish and Wildlife Service.

A variety of other mammal species could also inhabit the area, including various species of shrews (*Sorex sp*.) and bats (*Myotis sp*.), Columbian ground squirrels (*Spermophilus columbianus*), northern flying squirrels, deer mice (*Peromyscus maniculatus*), and meadow voles (*Microtus pennsylvanicus*).

A wide assortment of bird species inhabits the area during the summer. Bald eagles (*Haliacetus leucocephalus*) forage at the river inlet during periods of low human activity, ranging from a nest approximately 3/4 mile from the project area. Canada geese (*Branta canadensis*), common mergansers (*Mergus merganser*) and other waterfowl are found on the lake and in the river; harlequin ducks (*Histrionicus histrionicus*) have been seen at the inlet. Forest raptors like sharp-shinned (*Accipiter striatus*) or Cooper's hawks *(Accipiter cooperii)* and several owl species, including possibly the boreal owl (*Aegolius funeeus*), may nest in the area. Other birds include spruce grouse (*Canachites canadensis*) and a wide variety of songbirds (Gniadeck, 2000).

Glacier National Park provides habitat for five threatened and endangered species-bald eagle, gray wolf, grizzly bear, bull trout, and lynx. Several of these species have wide ranges and may be found throughout the Park. The threatened grizzly bear, lynx and bald eagle, and the endangered gray wolf may occasionally pass through the visitor service zone (Gniadeck, 2000).

As for amphibians and reptiles, there are no federally listed threatened or endangered species, or state listed species in the project area. Those present include the Boreal toad (*Bufo boreas boreas*), Columbia Spotted Frog (*Rana luteiventris*), and the northern long-toed salamander (*Ambystoma macrodactylum*). All three species are common in the area and breed locally, including some of the ponds and marshes within the Goat Haunt visitor service zone. The western terrestrial garter snake (*Thamnophis elegans*) is the only common reptile in the area, although a few of the less abundant "common" garter snake (*T. sirtalis*) sere found in the vicinity of Goat Haunt during our surveys in the early 1990s. (Marnell, 2000).

There are no known federally listed threatened or endangered fish species, or state listed species in the project area. There are not any reported occurrences of Bull trout (*Salvelinus confluentus*) within Cleveland Creek. (Michels, 2000).

(Refer to Appendix B for a Wildlife Species List).

Visual Resources

Goat Haunt sits at the upper end of the Waterton Valley at the head of Waterton Lake, surrounded by tall mountains on all sides. Scenic views are spectacular, both from the Waterton Townsite in Alberta, Canada looking across Waterton Lake toward Goat Haunt, and from Goat Haunt looking north across the lake to Waterton National Park. Mountain scenery is spectacular with rugged mountain peaks, deep valleys, and evergreen forests, rising up from the lakeshore. The mountain panorama, with Waterton Lake in the foreground, is the predominate view. The Goat Haunt developed area mostly blends in with the surrounding landscape because the colors, design and materials used in construction help the buildings fit into the surrounding lakeshore and forest environment. There is a generator at the ranger station that provides minimal power for the facilities, but lights are not prominent, and at night the facilities are not easily seen from a distance.

Cultural Resources

Beginning long before man began recording his journeys, people have been visiting the upper end of Waterton Lake: first Indians, then trappers, next loggers and hunters, and finally tourists. The Indians came and went for thousands of years, leaving very little mark on the area. However, since his arrival less than 200 years ago, the white man has greatly impacted this area, hunting the goats to near extinction and constructing a road to haul logs over the mountains.

The project area has been surveyed and no historic properties were identified in or adjacent to the project area. A 1964 flood inundated and destroyed all known historic properties in this area. Neither the corral nor the barn are historic structures, and there are no historic structures within the project area. The Goat Haunt visitor service zone

does not contain, nor is proposed for cultural landscape designation. The only documented historic structure in the Goat Haunt area is the boatman's bunkhouse (Goat Haunt Shed) which is located well outside the project area.

There are no known archeological resources or ethnographic sites in the project area. Copies of the environmental assessment will be forwarded to each of the American Indian tribes traditionally affiliated with Glacier National Park, for their review and comment. If the tribes subsequently identify the presence of ethnographic resources, appropriate mitigation measures would be undertaken in consultation with the tribes. The location of ethnographic sites would not be made public. In the unlikely event that human remains, funerary objects, sacred objects, or objects of cultural patrimony are discovered during construction, provisions outlined in the Native American Graves Protection and Repatriation Act (USC) of 1990 would be followed.

Socioeconomic Resources

Park Visitation and Use

The Goat Haunt-Belly River area is managed for its international importance to park visitors, for its wild character and wildlife, and for the shared natural and cultural resources of adjoining nations. As in other areas of the park, management actions emphasize cooperation and coordination in the spirit of the international Peace Park, world heritage site, man, and the biosphere designations.

The full range of services at Waterton Townsite supports visitor services. Boat service from the Waterton Townsite makes the Goat Haunt area accessible to visitors. The boat makes several trips up Waterton Lake every day, spending about 30 minutes at Goat Haunt before heading back down the lake. The boat operates from mid-May to mid-September. Off-season visitors must use the trails. Goat Haunt Travel figures for 1990 – 1999 shows an average of 31,014 visitors per year. Backcountry campground use for the Goat Haunt Area in 1999 totaled 3397 camper nights, and 14 stock nights. No overnight accommodations or food services are available at Goat Haunt.

The visitor service zone at Goat Haunt would be managed as staging areas for access to the surrounding backcountry. Waterton Lake is also included in this zone. Services would be limited to providing information and interpretation as well as customs and immigration. Development would be limited to that necessary to support those functions but could include contact and customs stations, boat docks, corrals, campsites, sanitation facilities, administrative facilities, and employee housing. Interpretive needs would be met with kiosks, exhibits, and personal services (NPS, 1999).

ENVIRONMENTAL CONSEQUENCES

This chapter is organized by resources, and is the scientific and analytic basis for the comparisons of alternatives. The effects of each alternative are assessed for direct, indirect, and cumulative impacts on selected natural, cultural and socioeconomic resources.

Impacts are described in terms of context (effects site-specific, local or even regional), duration (short- or long-term), and intensity (negligible, minor, moderate, or major). The thresholds of change for the intensity of an impact are defined as follows:

Negligible-the impact is at the lowest levels of detection
Minor-the impact is slight, but detectable
Moderate-the impact is readily apparent
Major-the impact is a severe or adverse impact or of exceptional benefit

The Council on Environmental Quality (CEQ) regulations, which implement the National Environmental Policy Act, requires assessment of cumulative impacts in the decision-making process for federal projects. Cumulative impacts are defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 CFR 1508.7). Cumulative impacts are considered for both the no-action and proposed action alternatives.

Cumulative impacts were determined by combining the impacts of the proposed alternative –building a new barn and corral, as well as a small structure to house photovoltaics, removing the existing corral, and rerouting a trail-with other past, present, and reasonably foreseeable future actions. Therefore, it was necessary to identify other ongoing or foreseeable future projects in the vicinity and, if applicable, the park. Following is a list of the reasonably foreseeable future actions that could occur in the vicinity:

- Normal repair/rehab to trails, facilities and structures
- Slide stabilization on walkway from the boat dock to the ranger station
- Hydro power is being considered for electricity, that would replace the propane generator

Based on review of the Glacier National Park Multi-Year Project List, there are no other projects listed for the Goat Haunt Ranger Station area.

Natural Resources

Topography, Soils and Geology

Alternative 1- Continue to use tthe current facilities for stock operations, and do not delineate the visitor service zone, construct a radio equipment building or reroute the trail (No Action).
Soils in the corral would continue to be eroded by water under this alternative because the current stock facility would be maintained. The primary impact on soils would be compaction, which would decrease permeability, locally alter soil moisture, and diminish the water storage capability. This would result in potential for increased runoff on the surface. There would be no additional construction, and therefore no major new expansion of development. Stock would continue to compact the soil within the current corral. Visitors would continue to use the roadway for the backcountry trail access to the south.

Alternative 2 – Construct a new barn and corral, delineate the visitor service zone, construct a radio equipment building, and reroute the trail (Proposed Action).
Construction of a new barn would require moderate excavation and salvage of about 1000 square feet of soil and vegetation, plus minor adjacent impacts on soils of about 500 square feet by construction. Topsoil salvaged from areas to be covered by the new building would be used in revegetation. Storage space would be needed for soil and plant material, but this may occur within the corral area or on the access road. Approximately .5 acre of ground would be compacted from stock use within the corral. The relocation of the barn and corral would have minor impact to soils because the site has a history of prior disturbance from use as a maintenance storage area and incinerator site. Planned

use of erosion and sediment control best management practices would minimize the potential for soil loss. There is 150 feet of ground cover between the barn/corral site and Cleveland Creek, which would buffer any runoff or erosion from the new construction.

Soils and topography at the old corral site would be improved by removal of stock operation from that site, and revegetation. There would be direct, long-term benefit from allowing the existing corral site to recover from compaction of stock operations, and support a plant community. The rate of soil loss in the existing corral area would be reduced.

Delineation of the visitor's service zone would enable Glacier National Park to implement the General Management Plan, and better manage facility development consistent with site capabilities. The project is within the visitor service zone and the site has had prior disturbance. Trail construction methods would include design and techniques to provide a durable tread, utilize geographic contours, and minimize erosion adjacent to the trail.

Conclustion:
The proposed actions would have minor direct effect to soil, topography and geology from the construction of the barn, radio building, and trail reroute because the sites of construction have prior disturbance. There would be long-term positive indirect benefit to soils by taking stock out of the current corral, which is a low, wet site.

Cumulative Impacts:
Negligible cumulative effects to soil resources would be expected from the Alternative 2-Proposed Action because there are no additional projects planned in the Goat Haunt visitor service zone that would result in loss of soil. There would be no cumulative effect from Alternative 1 No Action.

Aquatic Resources, Wetlands, and Floodplains

Alternative 1 – Continue to use the current facilities for stock operations, and do not delineate the visitor service zone, construct radio equipment shed, or reroute the trail (No Action).
Natural flow of spring runoff and water flow during hard rainfalls would continue to flow through and around the existing corral and barn facility. The potential for solid waste to wash into adjacent watercourses and ultimately into Waterton Lake remains a possibility**.** Park employees would continue to reduce the risk of solid waste pollution into surface and ground water by removing the waste from the corral on a weekly basis. Minor trenches were made to reduce the surface flow of water through the corral. There would continue to be moderate risk for deleterious effect to water resources in Alternative 1, because stock operations would remain in the existing location. Damage to the current facilities from a 500-year flood event would remain a possibility, since the flood of 1964 reached the edge of the barn. There would be no additional adverse effects on aquatic resources as a result of not delineating the visitor service zone because no management actions would be taken as a result of zoning.

Alternative 2 –Construct a new barn and corral, delineate the visitor service zone, construct a radio equipment building, and reroute the hiking trail (Proposed Action).
During investigations at Montana State University, they found that almost 90% of the nutrients were absorbed in the first 10 feet of vegetation (based on an experiment using 40 tons of manure on a 7% slope and duplicating a 25-year flood event by sprinkling 3" of water on the manure over a 24-hour period). Since the new corral site is approximately 150 feet from Cleveland Creek and 300 feet from the well site, nutrient loading should not be a problem (Michels, 2000).

Concern was initially expressed by the aquatic specialist that the well for the Goat Haunt complex is located 300 feet downhill from the new site. From a nutrient standpoint it was not expected to be a problem. However, he felt there may be a problem with bacterial and viral contamination. He felt this was especially important in this case since the NPS well is a shallow well dug to a depth of 40 feet with a static water level of 19 feet in gravelly/sandy soil (Butts. 2000).

To investigate this concern, the Park staff consulted with the State of Montana Department of Environmental Quality. Information for evaluation included the well log, water treatment procedures, chemical and bacteriological testing protocol, and the proposed location of the new corrals and barn. The well log shows that the well is probably

setting on bedrock The surface grade from the proposed corral site was observed to be a gradual slope 300 ft to the well, and 150 ft toward Cleveland Creek, with good soil and vegetation cover (Harker, 2000). The risk of pollution to the well from stock animal waste that could potentially seep through the soil to ground water is minimal because of the distance to the well, domestic water source monitoring procedures, and chlorinating of the water. We would continue the disinfecting techniques that we currently employ, and maintain our bacteriological testing frequencies. When we do our mandatory yearly nitrate sampling we would compare the results to past results**.** An elevation in the nitrate result could mean that we are having an adverse effect on the water quality (Harker, 2000).

Conclusion:
Movement of the corral and barn to the new site would have direct benefit to water quality by reducing the opportunities for solid wastes to be transported by surface water flow into adjacent creeks. Ground water impairment would be negligible because of the distance from the proposed site to the well site, vegetation/soil buffer, and because the domestic water is chlorinated. Construction would have negligible effect on water quality in Cleveland Creek because of the distance to the creek and the soil/vegetation buffer**.** There would be negligible effect on wetland because there are none identified on the National Wetland Inventory. There is no record of the proposed site flooding. Aquatic life should have indirect benefit from the proposal through improved water quality.

Cumulative Impacts*:*
There would be negligible cumulative effects to water resources from the proposed action in Alternative 2. By defining the visitor services zone, limits on development and location are defined. Relocation of the corral and barn to the higher and drier site would reduce the risk of stock solid waste from washing into adjacent Cleveland Creek. The trail reroute and radio equipment shed would not effect water resources because of the distance from water, and minor scope of disturbance. There are no other known construction actions planned for the Goat Haunt visitor service zone. Under the No Action Alternative 1, if the corral and barn were to remain in the current location, there is potential for moderate cumulative effect from solid waste to be washed from the corral to adjacent water courses.

In the not so distant future, maintenance is considering replacing the propane generators with a micro-hydro power plant. They plan to use an abandoned water intake structure for the source of water, install a water line, micro-hydro, and return the water to the same creek. This is in the preliminary feasibility study phase.

Vegetation

***Alternative 1 – Continue to use the current facilities for stock operations, and do not delineate the visitor service zone, construct a radio equipment building, or reroute the trail (No Action)*.**
Under the no action alternative, the existing corral would remain in about the same condition as it is today. The erosion on the south end of the corral would continue to degrade soil around the tree roots, and weed seeds and excess nutrients would be carried outside the corral area when water flows through. No additional adverse impact to vegetation would occur as a result of not delineating the visitor service zone because the zoning scheme does not call for any actions that would disturb vegetation.

The proposed site for the barn and corral would continue its gradual recovery from being used as an incinerator site. It would continue to be used as a location for dumping solid waste from the stock operation, radio communication, weather station, and maintenance storage site. It would remain in about the same condition over the next several years. Over a period of several decades, the site could fill in with trees, at which point many of the weeds would drop out, as conditions become shadier. No additional affect on vegetation would occur from continued use of the existing roadway as trail access to the backcountry (Williams, 2000).

***Alternative 2 – Construct a new barn and corral, delineate the visitor service zone, construct a radio equipment building, and reroute the hiking trail. (Proposed Action)*.**
The existing corral site would be revegetated using native species in the vicinity of the corral, such as yarrow (*Achillea millefolium),* cow-parsnip, western groundsel, western meadowrue (*Thalictrum occidentale),* Oregon

grape, swamp gooseberry, prickly rose (*Rosa acicularis)*, common snowberry, and Douglas fir (See Appendix A for a complete list of species found in the project area). The size of the area to be revegetated is estimated to be .25 acre. Based on soils and moisture, the old corral site has moderate to high revegetation potential, but may be hampered due to the degree of compaction (Williams, 2000).

The new site proposed for relocation of facilities is well drained with adequate moisture to provide for good initial germination and establishment of native vegetation. Soil depths are unknown but the very gravelly soils may limit revegetation potential by being somewhat low in nutrients and organic matter. Remedial planting and seeding may be necessary in FY 2001 because of the short lead-time provided to collect and grow a sufficient quantity of site-specific plant materials for this revegetation effort. Additional exotic plant control may be necessary in FY 2001 as well. The site is moderately susceptible to weed infestation, particularly given the existing disturbance and seed source availability. A couple trees are currently of concern as potential hazard trees, but other trees within striking distance of the barn may become weakened in the future due to disease or structural damage Williams, 2000).

Clumps of soil with native vegetation may be salvaged and transplanted to the abandoned site. If feasible, a couple of the smallest trees on the site may be transplanted to the existing corral site for revegetation. An enclosure fence would be placed around the two 40' subalpine fir trees to protect them from being rubbed and the roots trampled by the animals. The mature Douglas fir trees would be evaluated for their potential as hazards to the new barn and topped if necessary to reduce the hazard risk. Some vegetation would be completely removed at the barn location. Vegetation in the corral area would be consumed and trampled by the horses. Over time, the native species would drop out, while a few weedy species would persist, as is currently the condition in the existing corral. The smaller trees (less than six feet) would not likely persist for long. The larger trees might survive and provide some shading for the animals. The impact on vegetation within the proposed corral would be major, but the area of impact is small, representing a minor portion of the visitor service zone (Lapp, 2000).

The portion of the existing Waterton Valley trail that follows the old road through the proposed site would be re-routed through the forest around the corral for a distance of about 426 feet. Downed logs and some shrubs would need to be cut for the trail, but no trees would be removed. Vegetation would be removed in the immediate trail width and some branches may be trimmed. The width of the new trail disturbance may widen as people and horses trample outside the immediate trail corridor to avoid muddy conditions or to negotiate around fallen trees. The selection of the newer trail route, and the trail maintenance program, would seek to lessen the susceptibility for erosion once vegetation is removed. The trampled trail edges would be more susceptible to weed infestation, and weed seeds could be carried and deposited along trails by horses and hikers alike. In particular, horse droppings are a source of weeds. Although horses are fed certified weed free feed, they are not prevented from consuming weeds already growing in the park.

Conclusion:
The direct effect to vegetation from the proposed actions is minor when considering the small area of disturbance, and that the location of the new structures and trail reroute are within an area that has largely had prior disturbance to soil and vegetation. There is long-term benefit to the plant community around the old corral by restoring vegetation to this severely disturbed site.

Cumulative Impacts:
There would be negligible cumulative effect on vegetation from the proposed action. If native vegetation can be established, there may be beneficial effects to the existing corral site over time. Native vegetation could prevent further soil erosion, in turn providing a better substrate for native plant growth, and leaving less room for exotic species. As a previously disturbed site within the visitor service zone, the area would remain as a potential site for use should management determine the need for further development in the future. The end result would be a moderate beneficial impact to the site of the existing corral. When the new corral site becomes weedier, the exotic seed source would be greater in the vicinity of the proposed corral. The area just outside the gate of the corral would also become weedier due to the traffic of horses moving in and out of the corral. An Exotic Vegetation Management Plan is implemented park-wide to reduce and contain the spread of exotic plants, especially in the backcountry. There are no other known projects within the visitor service zone of the Goat Haunt Area that would result in removal of vegetation. There would be no cumulative effect to vegetation from the Alternative 1 No Action.

Wildlife, Including Threatened and Endangered Species

Alternative 1 –Continue to use the current facilities for stock operations, and do not delineate the visitor service zone, construct a radio equipment building, or reroute the trail (No Action).
Negligible impacts to wildlife would occur because there is no change to current operations, and there are very few documented incidents on wildlife as a result of operations within the Goat Haunt developed area. The decision to not delineate the visitor service zone would not have additional adverse impacts to wildlife. There would be no effect on the threatened grizzly bear, bald eagle, lynx, or the endangered gray wolf.

Alternative 2 –Construct a new barn and corral, delineate the visitor service zone, construct a radio equipment shed, and reroute the hiking trail (Proposed Action).
Moving the corral out of the lower floodplain area near Cleveland Creek and the Waterton River may not gain much for wildlife if the barn remained in use for other activities. Wildlife may benefit if the corral is removed, and the area is successfully revegetated to more natural conditions.

The proposal would increase the developed footprint within the visitor service zone, which would have a minor impact to wildlife through loss of potential habitat. The new structures and associated activity at the site may discourage use of the area by bears, other carnivores (including lynx), ungulates, and other wildlife that generally would avoid developed areas. However, the habitat loss would be minimal and probably insignificant for wildlife in general. Bear conflicts could be minimized by the proper storage of attractants. The impacts would be relatively minor, when considered alone. This proposal would not likely result in a significant displacement to wildlife.

Conclusion:
The proposed action would have negligible effect on wildlife or wildlife habitat because of the small area affected within the visitor service zone, proximity to other developments, and a history of prior disturbance within the project area. The proposed action would have no effect on the threatened grizzly bear, lynx, and bald eagle, or the endangered gray wolf because of the small scale of the project, and the infrequent use of the area by the species.

Cumulative Impacts:
The developments proposed in Alternative 2 within the visitor service zone at Goat Haunt would have negligible cumulative effect to wildlife because of the small area of disturbance, and that there are no other known projects planned within the Goat Haunt visitor service zone during the same period that would affect wildlife. There would be no effect on the threatened grizzly bear, lynx and bald eagle, or the endangered gray wolf because they are only occasional travelers through the visitor service zone, and likely would avoid the project area. There would be no cumulative effect on wildlife from the Alternative 1 No Action.

Visual Resources

Alternative 1 –Continue to use the current facilities for stock operations, and do not delineate the visitor service zone, construct a radio equipment building or reroute the trail (No Action)
There would be no change in existing visual quality of the landscape under the no action alternative. There would be no adverse effects on scenic views as a result on not delineating the visitor service zone because the zoning scheme would not affect views.

Alternative 2 – Construct a new barn and corral, delineate the visitor service zone, construct a radio equipment building, reroute the hiking Trail (Proposed Action).
The proposed barn, corral, and weather shed would result in an additional .54 acre of constructed feature within the landscape of the Goat Haunt visitor service zone. These facilities would likely be visible to visitors approaching the Goat Haunt developed area on the trail from the south. However, the design of the facilities would strive to blend them into the surrounding forest landscape. The choice of construction materials and methods would also blend in with existing structures and facilities in the main developed area at Goat Haunt. The long-term visual impact would be minimal and would consist of a slightly larger, but compatible, developed area within the visitor service zone.

Conclusion:
There would be negligible visual impact on the visitor from the construction activity, since the site is south of the primary use area at Goat Haunt and not visible from there due to the forest cover.

Cumulative Impacts:
There would be negligible cumulative effect on visual resources from the Alternative 2-proposal because there are no other known construction projects planned within the Goat Haunt visitor service zone, or at the south end of Waterton Lake. Facilities constructed within the Goat Haunt Area over the last 35 years are minimal to provide for basic visitor services and park operations, and have been confined within the same developed area. There are no known future activities that would add to the effects of the proposal. There would be no cumulative effect from the Alternative 1- No Action.

Cultural Resources

Alternative 1 - Continue to use the current facilities for stock operations, and do not delineate the visitor service zone, construct a radio equipment shed or reroute the trail (No Action).
This alternative would have no effect on historic structures, archeological resources, ethnographic sites, or cultural landscapes because none are present.

Alternative 2 – Construct a New Barn and Corral, Delineate the Visitor Service Zone, Reroute the Hiking Trail, and Construct a Radio Equipment Shed (Proposed Action).
A post-1964 road and incinerator site previously disturbed the new site for the corral and barn. The incinerator has since been removed. The proposed new visitor use trail would cross-ground that has been severely flooded in 1964. The area of potential effect has been intensively surveyed for archeological, ethnographic, and historic resources, and no cultural resources were found. A para-archeologist would be present during actual trail construction to closely monitor new ground disturbance in case subsurface archeological resources are found. If previously unknown archeological resources are discovered during construction, all work in the immediate vicinity of the discovery would be halted until the resources could be identified and documented and an appropriate mitigation strategy developed, if necessary, in accordance with the stipulations of the programmatic agreement among the National Park Service (Glacier National Park), the Advisory Council on Historic Preservation, and the Montana State Historic Preservation Officer for Management of Historic Properties in Glacier National Park; July, 1997.

Conclusion*:* The proposed action would have negligible effect on cultural resources.

Cumulative Impacts:
There would be no cumulative effect to cultural resources from the proposed actions listed under Alternative 2, or Alternative 1 No Action, since there were no historic structures, archeological resources, ethnographic sites, or cultural resources identified within the project area.

Socioeconomic Resources

Park Visitation and Use

Alternative 1- Continue to use the current facilities for stock operations, and do not delineate the visitor service zone, construct a radio equipment shed or reroute the trail (No Action).
This alternative may have a major negative effect on visitor and employee safety if the radio system is not upgraded, because this would affect communication from Goat Haunt to other employees and Ranger Stations throughout the Park. The other components of this alternative would have no effect on current visitor use.

Alternative 2- Construct a new barn and corral, delineate the visitor service zone, construct a radio equipment building, and reroute the trail (Proposed Actions).

With the corral and barn relocated 492 feet south of the main developed area, some visitors and employees could view this an improvement by reducing the potential for odor and fly attraction from the stock solid waste. Other

visitors are attracted to stock operations as part of their outdoor experience. Backcountry hikers may appreciate the trail reroute bypassing the stock operation. Since normal stock operations would operate out of the old barn/corral site until the new facilities were constructed, this alternative would have negligible effect on park operations. Relocation of the stock operation to a drier and sunnier site may have a positive effect for both employees and animals regarding improved site conditions. Visitors to the Goat Haunt Ranger Station and visitor service zone would have temporary and minor disturbance during one season of construction by the sight and sound of construction activities such as carpentry noise. Visitor use, stock, and trail facilities would be maintained during construction. The construction zone would be delineated for safety. There would be a need for logistical coordination between Glacier National Park and Waterton National Park, Alberta, Customs USA regarding how materials would be imported to the site, and how waste materials would be removed and/or exported. Coordination would occur with Waterton National Park regarding decisions on how materials removed from the construction site would be transported and disposed of in order to comply with federal, state, and provincial regulations.

Conclusion: The proposed action would have minor direct effect on visitor use of the Goat Haunt Area. Construction activities may be detected, but should not interfere with visitor use. The indirect effect of the proposed action would benefit the visitor by improving backcountry and stock operations.

Cumulative Impacts:
Construction activities under the Alternative 2 proposal would occur during the visitor use season, and would have minor cumulative effect on the quality of visitor experiences, taken in combination with other normal maintenance activities. However, these disturbances would be temporary, and could be minimized by advanced planning, and experience of maintenance and trail crews working in isolated park environments. There are no other construction projects planned within the Goat Haunt visitor service zone during the time of the proposed project. There would be no cumulative effects to visitor use from the Alternative 1, No Action alternative.

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APPENDIX A: LIST OF PLANT SPECIES

SPECIES	COMMON NAME
FORB	
Achillea millefolium	Yarrow
Antennaria microphylla	Rosy pussy-toes
Chimaphilla umbellatum	Prince's pine
Cirsium hookerianum	White thistle
Delphinium nuttallianum	Upland larkspur
Erythronium grandiflorum	Glacier lily
Fragaria virginiana	Blueleaved strawberry
Goodyera oblongifolia	Dwarf rattlesnake-plantain
Heracleum lanatum	Cow-parsnip
Hydrophyllum capitatum	Ballhead waterleaf
**Mentha arvensis*	Field mint
Mitella breweri	Brewer's mitrewort
Osmorhiza chilensis	Sweet cicely
Potentilla glandulosa	Sticky cinquefoil
**Rumex crispus*	Curly dock
Senecio integerrimus	Western groundsel
Senecio sp.	Groundsel
**Taraxacum officinale*	Common dandelion
Thalictrum occidentale	Western meadowrue
**Trifolium spp.*	Clover
Viola sp.	Violet
Xeraphyllum tenax	Beargrass
GRASS	
**Agrostis stolonifera*	Redtop
Bromus spp.	Brome
Bromus carinatus	Mountain brome
Calamagrostis rubescens	Pinegrass
Carex geyeri	Elk sedge
Elymus glaucus	Blue wildrye
Elymus spp.	Wheatgrass
SHRUB	
Acer glabrum	Rocky mountain maple
Alnus viridis	Green alder
Berberis repens	Oregon grape
Cornus sericea	Red-osier dogwood
Crataegus douglassii	Black hawthorn
Pachystima myrsinites	Mountain lover
Ribes lacustre	Swamp gooseberry
Rosa acicularis	Prickly rose
Rubus parviflora	Thimbleberry
Symphoricarpos albus	Common snowberry
TREE	
Abies lasiocarpa	Subalpine fir
Picea engelmannii	Engelmann spruce
Pseudotsuga menziesii	Douglas fir

*Exotic species

APPENDIX B: LIST OF WILDLIFE SPECIES

WILDLIFE SPECIES	
Scientific Name	Common Name
Ursus arctos horribilis	grizzly bear
Canis latrans	Coyote
Gulo gulo	Wolverine
Martes americana	Marten
Marmota caligata	hoary marmot
Spermophilus columbianus	Colombian ground squirrel
Spermophilus lateralis	golden-mantle ground squirrel
Tamiasciurus hudsonicus	red squirrel
Ovis canadensis	bighorn sheep
Oreamnos americanus	mountain goat
Lynx canadensis	Lynx
Felis concolor	mountain lion
Ursus americanus	black bear
Canis lupus	gray wolf
Mustela spp.	Weasel
Martes pennati	Fisher
Ochotona princeps	Pika
Lepus americanus	snowshoe hare
Thomomys talpoides	northern pocket gopher
Eutamias minimus	least chipmunk
Phenacomys intermedius	Montane heather vole
Arvicola richardsoni	water vole
Odocoileus hemionus	mule deer
Alces alces	moose
Cervus elaphus	Elk
Branta canadensis	Canada geese
Mergus merganser	Common merganser
Histrionicus histrionicus	Harlequin duck
Passerella iliaca	fox sparrow
Zonotrichia leucophrys	white-crowned sparrow
Carduelis pinus	pine siskin
Turdus migratorius	American robin
Lagopus leucurus	white-tailed ptarmigan
Cypseloides niger	black swift
Hirundo rustica	barn swallow
Hirundo pyrrohonota	cliff swallow
Corvus corax	common raven
Nucifraga columbiana	Clark’s nutcracker
Catharus guttatus	hermit thrush
Sialia currucoides	mountain bluebird
Myadestes townsendi	Townsend’s solitaire
Regulus calendula	ruby-crowned kinglet
Anthus spinoletta	water pipit
Dendroica coronata	yellow-rumped warbler

Oporornis tolmiei	MacGillivray's warbler
Wilsonia pusilla	Wilson's Warbler
Carpodacus cassinii	Cassin's finch
Leucosticte arctoa	rosy finch
Spizella passerina	chipping sparrow
Junco hyemalis	dark-eyed junco
Haliacetus leucocephalus	Bald eagle
Aquila chrysaetos	golden eagle
Falco mexicanus	prairie falcon
Accipiter striatus	Sharp-shinned hawk
Accipiter cooperii	Coopers hawk
Falco peregrinus	peregrine falcon
Aegolius funeeus	Boreal owl
Falco rusticolus	Gyrfalcon
Canachites canadensis	Spruce grouse
Dendragapus obscurus	blue grouse
Chordeiles minor	common nighthawk
Colaptes auratus	northern flicker
Perisoreus canadensis	gray jay
Parus gameli	mountain chickadee
Sitta canadensis	red-breasted nuthatch
Cinclus mexicanus	American Dipper
Pinicola enucleatro	pine grosbeak
Loxia curvirorstra	red crossbill
Bufo boreas boreas	Boreal toad
Rana luteiventris	Columbia SpottedFrog
Ambystoma macrodactylum	Northern long-toed salamander
Thamnophis elegans	Western terrestrial Garter snake
Thamnophis sirtalis	Common garter snake

APPENDIX C: APPLICABLE REGULATORY REQUIREMENTS

Americans with Disabilities Act, 1990 (ADA; PL 101-336): The ADA addresses discrimination against individuals with disabilities in employment, public services, public accommodations, and telecommunications. The ADA extends the principles of Section 504 of the Rehabilitation Act to protect persons with disabilities in all public facilities and programs irrespective of funding source. Accessibility Guidelines were produced in 1991 (ADAAG) that set forth standards for public accommodations

Architectural Barriers Act 1968 (P.L. 90-480): The ABA requires all buildings and facilities built or renovated in whole, or in part, with Federal funds be accessible to, and usable by, physically disabled persons.

Rehabilitation Act 1973 (P.L. 93-112): This act requires program accessibility in all services provided with federal dollars.

National Environmental Policy Act (NEPA) and Regulations of the Council on Environmental Quality: The National Environmental Policy Act applies to major federal actions that may significantly affect the quality of the human environment. This generally includes major construction activities that involve the use of federal lands or facilities, federal funding, or federal authorizations.

Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.): Section 7 of the Endangered Species Act is designed to ensure that any action authorized, funded, or carried out by a federal agency likely would not jeopardize the continued existence of any endangered or threatened plant or animal species. The National Park Service does believe the proposed action would have no effect on threatened or endangered species.

Executive Order 11988, Floodplain Management: This order requires all federal agencies to avoid the construction of certain types of facilities in 100-year and 500-year floodplains unless no other practical alternatives exist. The project is not within the 500-year floodplain.

Executive Order 11990, Protection of Wetlands: This order requires federal agencies to avoid, where possible, impact to wetlands. There are no wetlands within the project area.

National Historic Preservation Act of 1966, as amended (16U.S.C. 470, ET. Seq.): - Section 106 of the National Historic Preservation Act of 1966 (as amended) requires all federal agencies to consider effects from any federal action on cultural resources eligible for or listed on the National Register of Historic Places (NHRP), prior to initiating such actions. No historic resources are present within the project.

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